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Iranian Operational Warfighting Ability:
An Historical Assessment and View to the
Future

A Monograph
by
Major Mark J. Davis
Quartermaster



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School of Advanced Military Studies
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Fort Leavenworth, Kansas

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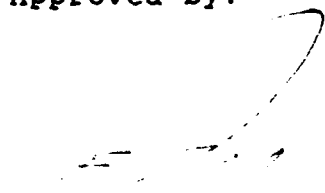
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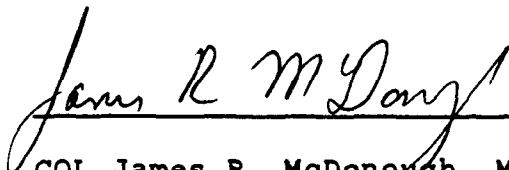
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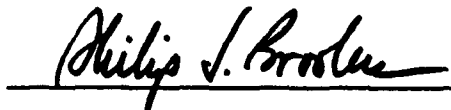
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ABSTRACT

IRANIAN WARFIGHTING AT THE OPERATIONAL LEVEL: AN HISTORICAL ASSESSMENT AND A VIEW TO THE FUTURE by MAJ Mark J. Davis, USA, 46 pages.

This monograph provides an assessment of Iranian warfighting abilities at the operational level during the eight years of the Iran-Iraq War. It also looks at post-war Iranian arms purchases and training exercises to predict future Iranian operational warfighting abilities.

The assessment of Iranian warfighting abilities is framed within the structure established by United States Training and Doctrine Command (TRADOC) Pamphlet 11-9, Blueprint of the Battlefield. The pamphlet details six Operational Operating Systems (OOSs): operational movement and maneuver, operational fires, operational protection, operational command and control, operational intelligence, and operational support.

This monograph concludes that future Iranian warfighting abilities at the operational level will be anchored on a formidable missile capability and a growing, maturing, Islamic Revolutionary Guard Corps (IRGC) equipped and trained to conduct both conventional and unconventional warfare.

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Introduction

This monograph provides an assessment of Iranian warfighting abilities at the operational level during the eight years of the Iran-Iraq War. It also looks at post-war Iranian arms purchases and training exercises to predict future Iranian operational warfighting abilities. In short, this work concludes that future Iranian warfighting abilities at the operational level will be anchored on a formidable missile capability and a growing, maturing Islamic Revolutionary Guard Corps (IRGC) equipped and trained to conduct both conventional and unconventional warfare.

The assessment of Iranian warfighting abilities at the operational level is framed within the structure established by United States Training and Doctrine Command (TRADOC) Pamphlet 11-9, Blueprint of the Battlefield. The pamphlet details six Operational Operating Systems (OOSs) which collectively describe the major functions occurring in a theater of operation: operational movement and maneuver, operational fires, operational protection, operational command and control, operational intelligence, and operational support. Iran executed the functions within these operational operating systems with varying degrees of competence during its war with Iraq.

The operational movement and maneuver of Iran's infantry and special operations forces during the war was impressive. In several campaigns, Iran moved upwards of one hundred thousand soldiers to positions on the battlefield in accordance with its operational designs. It also conducted operational maneuver with IRGC special operations forces; conventionally in the form of airborne, airmobile, and amphibious assaults, and unconventionally in the form of raids. Iran was unable however, to effectively move or maneuver its mechanized forces at the operational level. One reason for this was its inadequate transportation infrastructure. Other reasons included Iranian reluctance to commit armored forces to battle if they might be destroyed, and a lack of unity of effort between the IRGC and the regular army.

Iran achieved limited success with its use of operational fires. Iran fired missiles at both Basra and Baghdad during the "Wars of the Cities". Iranian regular and IRGC naval forces fired missiles at ships, port facilities, and other targets in an attempt to disrupt the economies of Iraq and its supporters. Iranian use of operational fires was limited, however, by a shortage of appropriate weapons. Iran could not match Iraq in the numbers of planes or missiles it could use. Iran may have gradually come to realize this fact and planned its operational fires to deter

Iraqi use of these weapons rather than for any other purpose.

Iran's efforts at operational protection were generally limited to operating under environmental conditions less favorable to Iraqi strengths. Iran did not have an effective air defense capability until late in the war. It lacked the repair parts to keep its Hawk missile systems working and did not effectively employ its air forces to protect operational formations. Iran conducted successful deception operations however, and occasionally achieved operational surprise.

Iran's operational command and control system during the war was fragmented, highly politicized, and nonconducive to either unity of command or unity of effort. Iranian regular armed forces and the IRGC did not work well together. The IRGC was originally a collection of militia that supported the overthrow of the Shah. Formally organized in 1979, it assumed responsibility for: ensuring adherence to Islamic teachings inside Iran, defending the revolution from domestic and external attack, and promoting the spread of the Islamic revolution outside of Iran. All three areas of responsibility have threatened the standing of the regular armed forces in Iranian society.

Iranian operational intelligence during the war relied extensively on human intelligence assets in the

face of a near total lack of technical intelligence gathering capability. IRGC forces operated with Kurdish collaborators in the northern sector and with Shia sympathizers in the southern sector of the front. Iran began to use overhead imagery near the end of the war.

Iran was hampered throughout the war in its efforts to provide operational support to its forces. The arms embargo, and the sabotage by departing American forces in 1979, created a shortage of repair parts for several major Iranian weapon systems. Iran responded by purchasing arms on the black market and improvising logistical support.

While Iraq recovers from its military defeat in Kuwait and endures the United Nations mandated destruction of its missiles and missile production facilities, Iran is conducting a huge arms buildup. Iranian military expenditures during 1991 are now estimated to have been more than \$19 billion.¹ By comparison, Iran's 1989 expenditures are estimated at \$8.6 billion and its 1990 expenditures at \$8.8 billion.²

It is difficult to translate the impact of Iran's arms acquisitions into specific military capabilities. The status of training within Iran's armed forces with the new equipment is essentially unknown. Iran's operational design for the use of its newly acquired

weaponry is also unknown. Within the framework of the operational operating systems however, it is clear that Iran's emerging strength at the operational level of war is the ability to deliver operational fires with missiles and special operations forces.

Operational Movement and Maneuver

The operational movement and maneuver operating system includes those functions which dispose forces to create a decisive impact on the conduct of a campaign or major operation. An operational level commander can accomplish this by either securing the operational advantages of position before battle or by exploiting tactical success to achieve operational or strategic results. The principal functions of this operating system are: operational movement, operational maneuver, operational mobility, operational countermobility, and the control of operationally significant areas.

Operational movement includes the strategic deployment of troops into a theater of operation and the regrouping, deploying, shifting, and moving of operational formations within a theater of operation from less threatened or less promising areas to more decisive positions.³ Iran's ability to conduct operational movement with its infantry formations during the war was impressive.

Iran moved more than two hundred thousand infantry troops to its southern border areas in the three months following the initial Iraqi attack of September 22, 1980. The movement of these forces is all the more remarkable because many units were only partially manned at the time of the Iraqi attack.

In March of 1982, Iran positioned more than one hundred thousand infantry soldiers in the vicinity of Dezful in preparation of an attack to drive the Iraqis out of that city and open an avenue of approach into the southern province of Khuzistan. The attack resulted in Iran's first success on the ground in the war.⁴ In January of 1986, Iran concentrated more than one hundred and fifty thousand infantry soldiers in the areas north and south of Basra and were successful in capturing the oil port of Al Faw. Shortly thereafter Iran seized the majority of the Faw Peninsula.⁵ The peninsula was strategically significant since it separated southern Iraq from Kuwaiti transshipment points for Iraqi supplies, and isolated Iraqi naval and radar installations at Umul-Qasr.⁶

Iran was extremely limited in its capability to move large numbers of armored vehicles during the war. The Iranian rail system did not permit the rapid movement of large numbers of armored vehicles. Iranian railroads were almost all single track. This means that traffic could only move in one direction at a

time. In addition, freight trains were limited in the weight they could carry. Trains could carry only four hundred to eight hundred tons because of the weak rail beds and uneven terrain on which the tracks were built. Iran has not appreciably improved its rail system since the end of the war.⁷

Iraq inflicted heavy damage on the Iranian road network and transportation infrastructure during the war. Some intelligence reports estimated that Iran suffered \$4 billion of such damage between 1980 and 1985. Most roads in Iran continue to be unimproved, and weather renders many of them temporarily impassable to heavy vehicle traffic.⁸

Iran's ability to move large quantities of equipment was also constrained by the number and type of available motor transports. During the war, civilian transports delivered fifty percent of Iranian armament, supplies, and personnel to the front.⁹ Most of the civilian transport was foreign made, and repair parts for foreign produced vehicles were hard to obtain. As a result, the movement of a single mechanized infantry division on October of 1980 from Mashad to the province of Khuzestan required six weeks of nonstop activity by the nation's transportation assets.¹⁰ With Iran's recent purchase of large numbers of tanks, it is important to note the lack of reports

concerning Iranian purchases of heavy equipment transporters (HETs).

Operational maneuver involves the deployment of operational forces to and from battle formations and the extension of forces to operational depths for the purpose of achieving a position of advantage over the enemy.¹¹ In general, Iran failed to extend forces to operational depth during the war.

There were several reasons why Iran failed to maneuver at the operational level. First, Iran did not possess a large number of tanks and other armored vehicles after the initial stages of the war. Equipment casualties were often not returned to action because of maintenance operations hampered by a shortage of repair parts. Second, the regular army had control over most of the armored vehicles in Iran. An absence of unity of effort between the regular army and the IRGC resulted in situations where armored formations did not participate in operations conducted by the IRGC. After Iraqi forces retreated back across the Iran-Iraq border, the Iranian regular army did not want to continue the offensive into Iraq. Thus, they did not participate in early Iranian offensives into Iraq. Distrust between the regular army and the IRGC often led to the piecemeal employment of tanks when the regular army and IRGC did fight together.

The Iraqi strategy of static defense allowed Iranian light infantry forces to infiltrate Iraqi front line positions and to envelop Iraqi units up to division level in size. In September, 1981, two Iranian infantry divisions captured more than two hundred Iraqi tanks, and destroyed the better part of three divisions using such infiltration and envelopment techniques.¹² This is an example of Iranian operational maneuver using light forces. Operational depth in this case was the extension of Iranian light forces through the depth of Iraqi divisional defensive positions to cut off potential Iraqi escape routes.¹³ When Iraq adopted a more mobile defensive strategy later in the war, opportunities for this type of Iranian operational maneuver were diminished.

Iran was resourceful in its attempts to achieve operational depth in its offensives. During Operation Jerusalem, an Iranian commander employed airborne troops to isolate Iraqi units north of Khorramshahr from three Iraqi divisions positioned inside the city.¹⁴ In 1986, Iran launched an amphibious assault behind Iraqi defenses as part of a two-pronged attack to seize the city of Faw.¹⁵ The attack was also supported by a feint, prompting the Iraqi commander to draw forces away from the Iranian main effort. The Iranian attack succeeded and Iraq suffered a humiliating defeat.

Iran suffered an early failure at operational maneuver with its armored forces. On January 5, 1981, an Iranian armored division broke out of Susengard and crossed the Karkeh River heading west in an attempt to break through the Iraqi lines and attack Iraqi positions from the rear. Initially successful, the Iranian division was completely destroyed after Iraq sealed off the penetration. Iran never attempted another operational maneuver with its armored forces.¹⁶

Iran learned another painful lesson about operational maneuver during Operation Dawn VI in early 1984. During this operation, Iran attempted an operational maneuver to split the Iraqi III and IV Corps, to cut the Basra to Baghdad Highway, and to seize the Majnoon Islands in the Hawizah marshes. Unfortunately, Iran did not use combined arms and instead relied exclusively on infantry units to make the penetration. Iran lost the battle and thirty-one thousand soldiers killed or wounded.¹⁷

In general, Iranian objectives were nearly always geographical. Iran's forces tended to attack frontally and reinforce units that had stopped or become bogged down. They almost never bypassed pockets of heavy resistance and did not have the armored maneuver capability to go after Iraqi flanks or rear areas. Iranian armor doctrine called for massed infantry to achieve an initial breakthrough and for tanks to

exploit tactical success. The problem for Iran was achieving initial tactical success with its infantry against the front line Iraqi defenses.¹⁸

In the four years since the end of the war with Iraq, Iran has held to an aggressive training program. Iran conducted massive military drills along its border with Iraq around the time of the January 15, 1991 United Nations deadline for Iraq to withdraw from Kuwait. These maneuvers were the largest ever conducted jointly by the air force, army, IRGC and volunteer units.¹⁹ At the same time, Iran held joint maneuvers in the waters of the Persian Gulf, Sea of Oman, and the northern basin of the Indian Ocean. In these maneuvers, Iranian units fired surface-to-surface, surface-to-air, and anti-ship missiles from a variety of weapons platforms. IRGC marines have conducted mock assaults on islands near the Straits of Hormuz. Both Iranian land and naval maneuvers included large troop formations and were focused on operational objectives.²⁰

Iranian construction and combat engineering units contributed significantly to the operational mobility of its ground forces in the face of several operationally significant obstacles. Specifically, Iranian engineers built a nine mile road linking the man-made Majnoon Islands with the Iranian rear areas north of the Hawizah Marshes.²¹ In addition, Iran's

combat engineering units built a number of roads near Basra in 1984-1985 along with several logistics storage sites. Iranian artillery units and logistics forces made extensive use of floating platforms and barges in the marshy areas of the central sector to position and ferry units across the marsh.²²

Iran's engineering and special operations units were also adept at creating and enhancing operationally significant obstacles. During the months of October and November of 1980, Iranian engineers flooded the alluvial plain near Ahvaz and immobilized one hundred and fifty tanks and other vehicles. The tanks and other vehicles sank in the mud and were subsequently abandoned and destroyed.²³

Iran continues to train its special operations forces and engineers in the task of destroying dams and other water management and containment facilities. Iranian Green Berets currently receive training at a site near the Karaj Dam, 50 kilometers north of Tehran.²⁴ Iran's recognition of the successes of its special operations forces during the war, and its current emphasis on special operations training, may indicate a growing Iranian realization of the potential of special operations forces in future Middle East conflicts.²⁵

Iran was successful in conducting operational counter mobility in the northern Persian Gulf area by

delaying, channeling, and disrupting the sea movement of Iraqi naval forces and the oil shipments of Iraq and its oil producing allies. Iran heavily mined the northern end of the Gulf, and covered the mines with fire from patrol boats and converted oil platforms. While Iranian obstacles prompted the intervention of the United States and other countries, Iran's success with these obstacles may encourage it to consider them in future strategic and operational planning.

Iran was able to exercise control of selected operationally significant terrain for short periods of time. An example of this is the Iranian capture and subsequent defense of the Faw Peninsula. From the Faw Peninsula, Iran was able to threaten the flow of material in and out of Kuwait, to isolate Iraqi naval forces bottled up in the Shatt al Arab waterway, and to threaten the Iraqi port city of Basra. Iran fought a bloody battle to win Faw in 1986, but forfeited it to Iraq in 1987 by failing to deploy sufficient troops to hold it.

Today, Iran is deploying increased forces around the city of Bandar al Abbas near the Straits of Hormuz. Bandar al Abbas is home to an army headquarters, a major naval base, and several major airfields. Western intelligence agencies have reported deployments of numerous anti-ship missile batteries in the area. Its location near the mouth of the Gulf makes Bandar al

Abbas key operational terrain in any future Middle East crisis. Iran's anticipated basing of its newly acquired submarines and mini-submarines in facilities near Bandar al Abbas is clearly tied to the Iranian goal of controlling access to the Gulf.²⁶ In 1990, Iran threatened to close the Straits when Iraq tried to transport military naval vessels it had purchased from Italy through the Persian Gulf to the port of Basra.²⁷

Operational Fires

The greatest lesson Iran learned from its experience in the Iran-Iraq war was the utility of operational and strategic fires. Strategically, Iran's national will was decisively engaged by Iraqi missile attacks on Tehran and other large Iranian population centers during the "War of the Cities." The Iranian people were demoralized by repeated Iraqi missile attacks on their cities and the As an illustration of this, more than one million people fled Tehran during the second "War of the Cities" in 1988.²⁸

In the "Tanker War", Iran proved unable to protect Kharg Island and its other oil facilities from attack by the Iraqi air force. As a consequence, Iran responded by doing the only thing it could - mining the waters of the Persian Gulf and risking international ire by attacking neutral shipping.

The "War of the Cities" and the "Tanker War" are important because of the dramatic impact they have had on Iranian weapons development and procurement priorities since the end of the war. In 1985, Speaker of the Iranian Parliament, Hashemi-Rafsanjani, stated that Iran would become a missile power second only to the superpowers.²⁹ He continued his theme in speeches he made in 1988, stating that Iran viewed missiles as the most important weapon today.³⁰

To this end, Iran has embarked on a missile procurement, development, and testing program which threatens to completely alter the strategic balance of power in the Middle East. Iran has purchased large numbers of Scud-B and Scud-C missiles from China. Between October and November of 1991 alone, Iran purchased over 170 Scud missiles.³¹

Iran has also purchased large numbers of the Chinese manufactured M-11 missile. These missiles have a range of over 620 miles, putting large parts of Saudi Arabia within easy striking distance of Iranian missiles. Riyadh for example, is only 450-500 miles from the Gulf coast of Iran.³² Iran has reportedly developed the necessary facilities to modify the M-11 and to manufacture another intermediate missile, the Iran-700, inside Iran.³³

Iran has claimed the ability to produce chemical weapons.³⁴ In addition, the press recently reported

that Iran may have obtained a number of tactical nuclear weapons from one of the former Soviet republics.³⁵ Many of Iran's neighbors fear the possibility that Iran may one day use such weapons against them. The fear is understandable given the extensive Iraqi and limited Iranian use of chemical munitions during the Iran-Iraq war. Any Iranian future use of such weapons however, must be evaluated in light of Iran's past behavior.

Some intelligence analysts reported that Iran used chemical weapons on a small scale during its war with Iraq. Iran's use of chemical weapons was confined to the battlefield. Iran probably used chemical weapons to dissuade Iraq from continuing its more widespread use of them against Iranian troops. Iran has recently gone on record as supporting the total destruction of atomic, bacteriological, and chemical weapons. Iranian leaders have declared their use contrary to the teachings of the Koran.³⁶

Iran never made consistent and effective use of operational fires. At the beginning of the war, Iran effectively employed long range artillery to halt the advance of Iraqi forces near Dezful and Ahvaz.³⁷ After that time however, there is no account of Iranian artillery contributing significantly to military operations above the tactical level.

The Iranian air force operated aggressively at the beginning of the war, providing both close air support and battlefield interdiction in support of Iranian ground forces. An example of this level of support occurred on October 3, 1981 when Iranian planes hit a large Iraqi armor formation massing in central Khuzistan.³⁸ Iran also made effective use of attack helicopters.³⁹ Helicopters were the primary Iranian anti-armor system, and Iran scoured the international arms market for TOW missiles for its helicopter gunships.⁴⁰ As the war progressed, Iran increasingly relied on army aviation to support ground operations, while the air force concentrated on strategic counter-value targets.⁴¹

The Iranian air force never fully recovered from the effects of the 1979 revolution. Khomeini initiated a purge of the officer corps, and the air force was the hardest hit of the armed services. At the beginning of the war, pilots were in short supply and flying proficiency was markedly lower than before the revolution. U.S. technicians who left Iran during the days preceding the fall of the Shah succeeded in erasing inventory records, ripping avionics packages out of F-14 aircraft, and destroying caches of repair parts at bases around Iran.⁴² The result of these actions was an Iranian air force which faced considerable problems maintaining its planes and combat

capabilities. Iran husbanded the few air assets it had for strategic missions at the expense of tactical and operational fires.

TRADOC Pam 11-9 defines operational fires as the application of firepower to achieve a decisive impact on the conduct of a campaign or major operation. They are integrated with operational maneuver and are designed to achieve a single operationally significant objective. Operational fires focus largely on one or more of the following:

1. facilitate maneuver to operational depths by creating an exploitable gap in the tactical defenses
2. isolate the battlefield by interdicting uncommitted enemy forces and their sustainment
3. destroy critical functions and facilities having operational significance⁴³

For the most part Iran did not try to facilitate the maneuver of its ground forces to operational depths by means of operational fires. One of the principal reasons for this, as mentioned earlier, was the lack of mobility in the Iranian ground forces. Instead, Iranian artillery attacked Iraqi front line positions in support of Iranian tactical maneuver.

Iran attempted to isolate the battlefield by interdicting uncommitted Iraqi forces and their sustainment. On occasion Iran used artillery and both fixed- and rotary-wing close air support to attack

Iraqi operational reserves. Iran was hampered however, by a shortage of applicable weapons, ammunition, and intelligence systems. Iran suffered generally from a lack of intelligence gathering systems. It is unclear whether Iran has attempted to remedy this deficiency since the end of the war.

Iran developed a considerable special operations capability during the war. One of the primary missions of Iranian special operations forces was the destruction of critical Iraqi functions and facilities. Examples of operational targets attacked by Iranian special operations forces include Iraqi military bases in Rowanduz Gorge and the Iraqi oil complex at Kirkuk.⁴⁴ It is important to note here that TRADOC Pamphlet 11-9 categorizes attacks by special operations forces as operational fires.

A final thought about probable, future Iranian operational fires concerns Iran's assessment of the performance of U.S. cruise missiles during Operation Desert Storm. Iranian leaders may have decided to pursue the acquisition of their own cruise missile capability. If Iran wanted to buy existing cruise missile technology, it need look no further than the Russian republic. The Russian republic possesses state of the art cruise missile technology and might be interested in selling it to Iran in exchange for hard currency.⁴⁵ Iran, with Chinese assistance, could

conceivably reverse engineer the cruise missile components and perhaps even improve upon them. The Iranian M-11 missile modification program certainly invites that possibility.

Operational Protection

The Operational Protection operating system subsumes those functions which conserve the fighting potential of a force so that it can be applied at the decisive time and place. These functions counter the effects of the enemy's firepower and maneuver by making soldiers, systems, and operational formations difficult to locate, strike, and destroy.⁴⁶

Operational air defense is one of the primary components of operational protection. Operational air defense includes both ground based systems and counterair operations. Iran used Hawk, Rapier, and Tigercat surface-to-air missile systems during the war. Later in the war Iran reportedly obtained Stinger missiles from Pakistan. These missile systems were concentrated around Kharg Island and Tehran. The most significant contribution to Iran's ground based air defense systems however, was made by its gun systems against Iraqi helicopters and low flying aircraft.⁴⁷

Iran suffered from two glaring deficiencies in her use of ground based air defense systems. First, Iran

did not possess an integrated air defense command and control system. Iranian air defense systems operated in isolation. Second, Iran had an extremely difficult time maintaining its air defense systems because of a shortage of spare parts. This was particularly true of parts for the Hawk missile systems.⁴⁸

Iran made Kharg Island and Tehran the main focus of its ground based air defense effort during the war. In spite of this fact, Iraq was able to strike at Kharg Island with air power almost at will. Only after Iran received significant numbers of spare parts for the Hawk systems in 1987 did Iran's ability to shoot down Iraqi planes attacking Kharg Island improve.⁴⁹

Since the end of the war, Iran has purchased over two thousand surface to air missile (SAM) launchers from Bulgaria in order to beef up its ground based air defense missile system.⁵⁰ In addition, President Hashemi-Rafsanjani announced that Iran had concluded an agreement for the delivery of an advanced radar system.⁵¹ These systems have been incorporated into recent Iranian maneuvers.⁵² It is uncertain though how effectively they have been integrated into an integrated air defense system.

Iran did not conduct effective counterair operations during the war. With the exception of an Iranian air strike at an Iraqi air base at al-Walid, where Iraq based TU-22 and IL-28 bombers, Iranian

attacks at Iraqi airfields were conducted by special operations forces.⁵³ In the air strike above, Iranian planes flew from a base at least eight hundred kilometers away, necessitating in-flight refueling. In general however, Iranian pilots did not engage Iraqi planes in aerial combat or on the ground. Iran conserved its planes for counter-value strikes at Iraqi strategic targets. Iranian helicopters occasionally engaged Iraqi helicopters, but there are no indications that Iranian commanders made a habit of assigning helicopters to the mission of providing operational protection for its forces.

Iran's failure to provide effective operational protection for its ground forces was extremely costly at times. In 1984, Iraq launched successive strikes against Iranian troop concentrations, command and control facilities, depots, and lines of communications and nearly destroyed the Iranian offensive operation by the effect of fires alone.⁵⁴

On occasions when Iran was able to provide operational protection to its forces, it was non-lethal, non-technical measures that worked. Iranian planes survived a surprise Iraqi attack on Iranian airfields at the start of the war through the protection afforded them by bunkers built by U.S. defense contractors before the war.⁵⁵ The utility of bunkers in the future however, was recently brought

into question with the effective use of U.S. high precision guided munitions during Operation Desert Storm.

Iran used geography and engineering assets to protect her forces from Iraqi efforts to manipulate the water of the Tigris River. Iraq attempted to create water obstacles and flooding in order to destroy Iranian troop concentrations in the central sector of the front. In one case, Iran built a sixty kilometer long canal into the Karun River to divert potential flood waters.⁵⁶

Iran was intermittently successful in disguising the location, timing, and objectives of its ground campaigns. On several occasions Iran was able to manipulate the Iraqi operational commander's perceptions and expectations, concealing Iranian intentions until it was too late for the Iraqi commander to respond effectively. One example of this was the successful Iranian attack on the Faw Peninsula in 1986. Iran conducted diversionary attacks to the north of Basra and succeeded in drawing Iraqi ground and air forces away from the Iranian main effort in the south.⁵⁷ In a broader context, Iran applied continuous pressure across the entire front in an attempt to stretch Iraqi defenses, and to deceive Iraqi commanders about the scope and direction of Iranian offensives.

On other occasions, Iran was unable to conceal the disposition of its ground forces. Iraq intermittently received intelligence reports from the U.S. based on data obtained from U.S. satellites and surveillance aircraft.⁵⁸ There is no evidence to suggest that Iran was able to mask the signature of its forces from that form of intelligence gathering. When Iraq had accurate intelligence, it was able to take decisive action. In one instance, Iraq employed chemical weapons with devastating effect against deliberate Iranian assaults of prepared Iraqi defensive positions.⁵⁹ In another instance, Iraq was able to surprise lightly held Iranian defensive positions on the Faw Peninsula based upon such intelligence.⁶⁰

Iran's approach to countering enemy overhead intelligence gathering appeared to center on minimizing the physical signature of its formations. Specifically, Iran has organized sizable ground and naval special operations forces under the IRGC. These types of forces, with their less formal structure and wide array of equipment, may be more difficult for technical intelligence gathering systems to identify and track on the battlefield.

Operational Command and Control

The Operational Command and Control operating system describes the exercise of authority and direction by a properly designated commander over apportioned operational forces in the accomplishment of a mission. It includes the ability to acquire and communicate operational level information and to assess the operational situation.

Iran did not have an effective operational command and control system during the eight years of the Iran-Iraq war. The problem was a reflection of the situation at the strategic level, where competition and distrust between the Iranian regular armed forces and the IRGC caused tremendous problems. Ayatollah Ruhollah Khomeini, the leader of the Islamic Revolution in Iran, created a Supreme Defense Council in 1980 to bring together the services of the regular armed forces and the representatives of the IRGC and its associated organizations. The unity of effort it purported to achieve however, never materialized.⁶¹

The branches of the regular armed forces did not have a history of working together. Prior to 1979, the senior officers of each service reported directly to the Shah. There were no operational level commands. Compounding the problem, the leaders of the Islamic revolution which toppled the Shah exacted purges of the

officer corps which stripped away much of the available talent.⁶² A second set of purges in 1982 exacerbated the problem and instilled a paranoia among military leaders in the field.

Another problem arose when the regular armed forces withheld their support for Iranian offensives into Iraq starting in 1982-1983. The consequence of this nonparticipation by the regular army was that IRGC infantry formations bore the brunt of the offensives without the support of the armor, artillery, and helicopters of the regular armed forces. The human wave tactics of the IRGC failed miserably in the absence of combined arms support.⁶³

The regular armed forces and the IRGC often failed to operate effectively even when they did fight together. Part of the reason resides in the special treatment the IRGC received. The IRGC received more money and materiel support than did the regular armed forces.⁶⁴ The disharmony this created was reflected in lack of both unity of command and unity of effort in Iranian military operations.

An example of Iranian inability to effectively and efficiently acquire and communicate operational level information occurred in early 1986 when Iranian leaders in Tehran summoned eight thousand commanders from the front lines to confer on the progress of the war.⁶⁵ Iranian operational level commanders were apparently

unable to satisfactorily represent the situation at the front to the political leadership in Tehran, necessitating the conference. The ability of Iranian operational commanders to assess the operational situation and develop clear campaign plans and objectives was also poor. Iranian fighting formations were often committed to battle or withdrawn from action without reference to a coherent operational plan.⁶⁶

Iran has taken steps to rectify some of the command and control problems with which it suffered during the war. The first step was to begin the professionalization of the IRGC. In May, 1990 the IRGC announced the institution of titles and ranks for members of its armed forces.⁶⁷ The second step was to integrate some of the positions of command authority over the regular armed forces and the IRGC. In December of 1991, Rear Admiral 'Ali Shamkhani was named commander of the Navy of the IRGC while retaining his position as commander of the Navy of the Islamic Republic of Iran.⁶⁸ The two organizations, while remaining administratively separate, shared a common commander. The final step to date is an aggressive pursuit of western communications equipment to facilitate command and control.

Operational command and control will continue to be an Iranian weakness however, at least for the foreseeable future. The division between the IRGC and

the regular armed forces is too deep to be quickly overcome. The only area in which unity of command or unity of effort is likely in the short term is among the special operations forces. These forces, both army and navy, are almost completely controlled by the IRGC.

Operational Intelligence

The operational intelligence operating system describes those functions essential to providing the necessary information for the planning and conduct of campaigns and major operations within a theater of operations. Operational intelligence is focused on the joint and combined intelligence systems which collect information and identify, locate, and analyze strategic and operational centers of gravity. Operational intelligence is predictive in nature and must see the campaign through the eyes of the enemy commander and not be constrained by friendly preconceived notions.⁶⁹

Iranian operational intelligence efforts were both inconsistent and unreliable during the war with Iraq. Iran correctly identified the support of Iraqi Shias living in and around Basra as potentially decisive to Iranian operations in that area. The Iranians were unsuccessful however, in inspiring great numbers of these Iraqis to actively support Iranian forces.

Iranian intelligence systems apparently identified two strategic centers of gravity for the Iraqis. One center of gravity was the will of the Iraqi people to continue to accept high casualties in the war. The Iranians attacked this center of gravity by launching Scud missiles at Iraqi population centers and exacting heavy Iraqi casualties with its bloody, "human waves" type tactics.

The second strategic center of gravity was the Iraqi ability to produce and ship its oil. With the increased monetary contributions of Iraq's oil producing allies to Iraq's war effort, Iran broadened this center of gravity to include the oil production and shipment capabilities of Iraq's allies. To this end, Iran attacked the production facilities, port facilities, and tankers of many different nations inside the Gulf. Iranian failure to accurately gauge the response of the United States and the Soviet Union to its attacks on Gulf shipping resulted in a naval engagement which cost Iran dearly, both materially and morally.

Iran did not have sufficient intelligence gathering systems at its disposal during the war. Several of its RF-4 surveillance aircraft were inoperable because of repair parts shortages.⁷⁰ All but one of its remaining RF-4s were shot down during the war. Partially to compensate for its lack of

aerial surveillance capability, Iran was forced to use its F-14 aircraft in the role of airborne warning and control systems (AWACS).⁷¹

Sometime around early 1987, Iran obtained the necessary equipment to down link land satellite (LANDSAT) imagery.⁷² Iran had less than a year and a half before the end of the war to perfect the use of this type of intelligence. The war ended in 1988. Iran may currently be working on ways to use this type of information, particularly to support its operational fires capability. A specific application of LANDSAT imagery is in the guidance systems of cruise missiles.

Iran is also reported to be experimenting with the use of remotely piloted vehicles (RPVs). During 1988-1989, Iran publicly displayed three indigenously designed and produced RPVs at a European air show.⁷³

One of the biggest lessons Iran learned about operational intelligence during the Iran-Iraq war was the utility of intelligence obtained from allied nations and people. The Kurds in northern Iraq rendered assistance to Iranian forces operating near Kirkuk. Shia agents inside Iraq near Basra provided assistance to Iranian special operations forces in the southern and central sectors of the front. The assistance these groups rendered ranged from guides and safe haven to direct action.⁷⁴

Iran benefitted directly and indirectly from intelligence data provided by foreign nations. The United States directly assisted Iranian plans for the capture of Al Faw by providing Iran with detailed information about the locations of Iraqi troop locations. The United States indirectly assisted the same set of Iranian plans by providing misinformation to Iraq about the location of Iranian troop concentrations. The misinformation caused Iraqi attention to shift toward the diversionary attack and away from the Iranian main attack.⁷⁵

In the future, Iran will focus its attention on developing some of the intelligence acquisition capabilities it lacked during the war with Iraq. RPVs and LANDSAT imagery will be the primary focus. Iran will also try to establish human intelligence (HUMINT) networks, especially among Shias. Several former Soviet republics, Iraq, and some African countries have large Shia populations.

Operational Support

The Operational Support operating system consists of the logistical and support activities required to sustain the force during campaigns and major operations within a theater of operations. The Blueprint of the Battlefield considers five activities in this operating

system: arming the force, fueling the force, fixing and maintaining equipment, manning the force, and distributing supplies and service.

In general, Iran failed to provide adequate operational support to its forces during the war with Iraq. The only strikingly positive aspect of Iran's efforts to provide operational support was its ability to improvise in the face of an arms embargo enacted against it.

The arming function includes the replenishment of arms, ammunition, and equipment to forces within a theater of operation. At the operational level, the task of arming the Iranian military proved nightmarish. The problem for Iran was the vast array of equipment in its inventory resulting from its clandestine arms purchases.

At the beginning of the war, most of the equipment in the Iranian inventory was manufactured by the United States, Britain, and France. By the end of the war however, equipment from Sweden, the Peoples Republic of China, North Korea, the Soviet Union, India, several Eastern European countries, and Libya was common in each branch of military and in the IRGC.⁷⁶

This mix of equipment caused severe problems when Iran tried to replenish ammunition to its armored formations. By 1988, Iran's 1,040 tanks used seven different calibers of main gun ammunition.⁷⁷ The task

of supplying the correct ammunition, in sufficient quantities, to these weapons was daunting.

Since the end of the war, Iran has purchased mostly Soviet and Chinese designed weapons. In the last year alone Iran bought more than 1,700 Soviet designed T-55 and T-72 tanks, 15,000 multiple rocket launchers, 147 modern fighter and bomber aircraft, and a large number of surface to air missiles.⁷⁸ China has supplied Iran with large numbers of fighter jets, missiles, tanks, and multiple launch rocket systems.⁷⁹

It appears that Iran believes it can preclude many of the supply difficulties it faced during the war by standardizing the military equipment in its inventory. The standard appears to be Soviet and Chinese, and the push is to produce as much as possible indigenously. Iran has built more than 240 major, state-owned plants and now supports more than 12,000 privately owned workshops devoted to the production of military equipment.⁸⁰ Iran has negotiated with the Russian republic for the right to manufacture T-72 tanks in Iran and the tanks are expected to include night vision systems and reactive armor similar to those of the T-80 tank.⁸¹

There were no reports of Iranian difficulties in supplying fuel to its forces. A shortage of lubricants at the front may have reflected a shortfall nationwide.⁸² Iran's ability to provide adequate fuel

storage and distribution at the operational level will be tested in the future however, as Iran's armored forces swell with new arms purchases.⁸³ There has been no mention in either the press or intelligence cables about Iranian efforts to acquire petroleum transports to carry fuel on the battlefield.

Iran was woefully unprepared to fix and maintain its equipment during the war with Iraq. The biggest problem was an acute shortage of repair parts. The shortage of repair parts was most prominent for aircraft, the Hawk air defense system, and Iran's armored vehicles. Aside from repair parts, little has been published about Iran's repair and maintenance performance at either the operational or the tactical level.

Iran's ability to supply repair parts for its equipment is improving. Its purchases of predominantly Soviet equipment will reduce the total number of unique parts required to maintain its equipment. In addition, Iran manufacturers have learned from Chinese technicians how to reverse engineer equipment. A recent success in doing this is Iran's ability to manufacture parts for its F-14 aircraft.⁸⁴

Iran's ability to provide a seemingly uninterrupted flow of replacement personnel to the front during the war with Iraq was remarkable. At the beginning of the war, the regular Iranian military

troop strength in junior officers and noncommissioned officers was less than fifty percent of what it was before the start of the Islamic revolution. Iran quickly filled the officer and noncommissioned officer ranks, and continued to increase troop strength along the front lines by 40,000-50,000 soldiers a year during the first years of the war.⁸⁵

Some western analysts believed that Iran exhausted its operational and strategic reserves during the offensive operations into Iraq in early 1984. During a two month period that year Iran lost more than twenty thousand men. Bolstered by new equipment purchased secretly from abroad however, Iran was able to regenerate many units and introduce several new formations of the IRGC.⁸⁶

The manning function of operational support includes the training of replacement personnel. It is important to note that Iranian replacements during the war were mostly IRGC infantry, including Basiji volunteers. These young men and women were often equipped with only small arms and shoulder fired rockets and had to forage weapons and ammunition from overrun Iraqi positions. Most Iranian volunteers received less than three months training.⁸⁷ In general, although Iranian performance of the manning function was strong in terms of recruiting and

organizing units, it was weak in terms of preparing individual soldiers for combat.

Iranian field, health, and personnel services at the operational level were poor. While there is little information about these services in the open press, Iranian personnel at the front suffered from poor medical care.⁸⁸ One reason for this was an extreme shortage of medicines and blood.⁸⁹ Another reason was that Iranian medical evacuation was often improvised. In the 1986 offensive to seize the Faw Peninsula, Iran ferried supplies and human casualties on small boats and rafts across the Shatt al-Arab waterway at night.⁹⁰ With Iran's recent expulsion of the International Red Cross, there is no reason to believe that Iranian military health care will improve in the near future.

Iran's ability to distribute supplies and equipment during the war was limited by a shortage of military transport vehicles. Iran attempted to redress the shortage by borrowing heavily from its commercial transportation assets. Additionally, Iran purchased trucks from abroad, approximately two hundred from Sweden and India.⁹¹ Neither of these measures however, came close to meeting the shortfall of transportation assets. Doctrinally, Iran adopted the Soviet model of the forward distribution of supplies.⁹² Operational commanders exercised central control over their transportation assets and pushed supplies forward.

Conclusion

Iran's future ability to wage war at the operational level will be anchored on a formidable missile capability and a growing, maturing IRGC equipped and trained to conduct both conventional and unconventional warfare. Iran's current emphasis in these areas is rooted in its experiences of the Iran-Iraq war and is recognizable from Iran's recent arms purchases and military training agenda.

Iran's experience with operational fires during the Iran-Iraq war supports its inference that missiles are the most important weapons in the world. During the war, Iran and Iraq each attacked the other's civilian population centers during their "Wars of the Cities." Iraqi missile attacks on Tehran, the capitol of Iran, posed serious problems for the Iranian government. At one time more than a million Iranians fled the city in fear of continued Iraqi attacks. Iran's attacks on Iraqi cities were also effective, but were limited in number and intensity by the small supply of missiles available in Iran's inventory. During the "Tanker War", Iranian personnel used both missiles and mines in attacks on maritime targets. The attacks ultimately constituted a serious enough threat to prompt superpower intervention.

Since the end of the war Iran has aggressively pursued a missile development and procurement program designed to make it a world power. Iran has acquired significant numbers of intermediate range missiles, imported key missile technologies, and created an indigenous missile production capability. Iran's missile capability is now quite formidable.

Iran achieved some successes in executing operational movement and maneuver with its infantry and special operations forces during the war, most notably with IRGC forces. IRGC units conducted air assaults, amphibious assaults, and maritime mining and raiding operations as part of, and in support of, Iranian operational maneuver. Iran did not effectively employ its armored forces during the war however, and failed to imbue its regular armed forces and the IRGC with the spirit of cooperation needed to ensure successful combined arms operations.

IRGC units conducted both conventional and unconventional operations during the war. While the IRGC is more commonly associated with the "human waves" tactics of its conventional forces, IRGC unconventional operations during the war were also noteworthy. IRGC special operations units conducted raids and intelligence gathering operations on land and sea in support of Iranian operational objectives.

In the four years since the end of the war the IRGC has maintained its size relative to the regular armed forces and shown signs of having matured as an institution. The IRGC has introduced a rank structure for its members, purchased and manufactured its own weapons and equipment, and participated in joint exercises with the regular armed forces. The prominent role of the IRGC during the war with Iraq, and in the Islamic Revolution both inside and outside of Iran, secures for it a position of primacy in Iran's operational military buildup.

Iran will continue to develop its operational strengths in missiles and its IRGC. Current and future United States contingency plans targeted on Iran must take account of these strengths and identify actions to defeat them. That task will become more difficult with each passing day.

ENDNOTES

- 1 Arnold Beichman, "Arms and the Goals of Iran," Washington Times, 1 March 1992, B-3 and Tony Banks and James Bruce, Iran builds its strength," Jane's Defence Weekly, 1 February 1992, 158.
- 2 "The Middle East and North Africa." In The Military Balance 1990-1991, 103. London: International Institute for Strategic Studies, 1990.
- 3 Training and Doctrine Command, Pamphlet 11-9, Blueprint of the Battlefield, Ft. Monroe, VA: Department of the Army, 27 April 1990, 12.
- 4 James Breckenridge, The Iran-Iraq War, 1980-1988, unpublished, 10.
- 5 A.H. Cordesman, The Iran-Iraq War and Western Security 1984-87: Strategic Implications and Policy Options, (London: Jane's, 1987), 92.
- 6 Breckenridge, 18.
- 7 Ye. Gromov, "Principal Iranian Communication Routes and Ground Transportation," in ZARUBEZHNOYE VOYENNOYE in Russian No 11, November 1987 reprinted in JPRS-UFM-88-004, 10 May 1988, 43.
- 8 Gromov, 40.
- 9 Gromov, 40.
- 10 Nikola B. Schahgaldian, The Iranian Military Under the Islamic Republic, The Rand Corporation, March 1987, 52.
- 11 TRADOC Pam 11-9, 12.
- 12 Breckenridge, 11.
- 13 US Army, FM 100-5, Operations (Washington, D.C.: Department of the Army, May 1986), 17.
- 14 Breckenridge, 11.
- 15 Breckenridge, 19.
- 16 Efraim Karsh, The Iran-Iraq War: A Military Analysis, The International Institute for Strategic Studies Adelphi Papers, no. 220., (Dorchester, Great Britain: Henry Ling, 1987), 22.
- 17 Breckenridge, 14.
- 18 David Segal, "The Iran-Iraq War: A Military Analysis," Foreign Affairs, Summer 1988, 957.
- 19 "Iran Plans Massive Military Drills," Los Angeles Times, 2 January 1992, A-14.
- 20 "Maneuvers 'Complete Success'," from Tehran Domestic Service in FBIS-NES-90-247, 24 December 1990, 46-47.
- 21 Breckenridge, 14.
- 22 Breckenridge, 16.
- 23 A.H. Cordesman, "Lessons of the Iran-Iraq War: Part Two, Tactics, Technology, and Training," Armed Forces Journal International, June 1982, 76. Cited hereafter as Tactics.
- 24 "Green Berets to Launch Maneuvers at Karaj Dam," in FBIS-NES-90-183, 20 September 1990, 51.

25 William H. Burgess III., "Iranian Special Operations in the Iran-Iraq War: Implications for the United States," Conflict, Volume 8, 1988, 35.

26 "Iran soon may take delivery of Russian-built submarine," Kansas City Star, February 9, 1992, A-9, first published in the Los Angeles Times.

27 U.S.N.I database dated January 20, 1992.

28 Joseph S. Bermudez Jr., "Ballistic Missile Development in Iran," paper presented at the Missile Proliferation Project at the Institute of International Studies, 10.

29 FBIS-SA, 12 June 1985, I1.

30 FBIS-NES-88-186, 26 September 1988, pp. 53-57.

31 Jim Rogers, "Military Intelligence Analysts at Odds with State Department Over Iran Scenario," Inside the Air Force, 28 February 1992, 1.

32 Beichman, B-3.

33 Bermudez, 14.

34 Bermudez, 23.

35 Harvey Morris, "Scare over Nuclear Arms Leaks focuses on Iran: Lobby groups are exploiting fear in the west that former Soviet warheads may fall into the wrong hands," The Independent, February 25, 1992, Foreign News Page, 10.

36 "Iran backs nuclear weapons destruction at Moslem summit opening," Agence France Presee, 16 February 1992.

37 Tactics, 78.

38 Tactics, 78.

39 Karsh, 39.

40 JPRS-UMA-004, 14.

41 Karsh, 37.

42 Karsh, 46.

43 TRADOC Pamphlet 11-9, 13.

44 Burgess, 28.

45 Nick Cook, "Soviet Air-Launched Weapons - As Smart as They Come." Jane's Intelligence Review, January 1992, 26.

46 TRADOC 11-9, 13.

47 Karsh, 40.

48 Karsh, p. 40

49 Cordesman, 138.

50 Beichman, B-3.

51 FBIS-SOV-89-122, 27 June 1989, 1.

52 "Plans to use SAMs," Tehran IRNA in FBIS-NES-91-005, 8 January 1991.

53 Tactics, 84.

54 The Iran-Iraq Armed Conflict article by Col I. Guryanov: "The Iran-Iraq War", Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 2, FEB 87 (signed to press 3 FEB 87), 14-19.

55 Breckenridge, 7.

56 Cordesman, 61.

57 Breckenridge, 21.

58 JPRS-UMA-004, 13.
 59 Cordesman, 63.
 60 Breckenridge, 29.
 61 FBIS-NES-88-109, 4 June 1988, 55.
 62 Breckenridge, 12.
 63 Karsh, 26.
 64 The Iran-Iraq Armed Conflict article by Col I. Guryanov: "The Iran-Iraq War", Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 2, FEB 87 (signed to press 3 FEB 87), 14-19.
 65 Breckenridge, 22.
 66 Karsh, 41.
 67 "IRGC, Basijis Titles, Ranks Announced," Tehran JOMHURI-YE ESLAMI in FBIS-NES-90-143, 25 July 1990, 60.
 68 "New Commander for Guard Corps Navy Named," in FBIS-NES-90-247, 24 December 1990, 45.
 69 TRADOC Pam 11-9, 14.
 70 Banks and Bruce, 158.
 71 Tactics, 80.
 72 Cordesman, p. 37
 73 "Iranian Rockets Head SECARM Display," 219.
 74 Burgess, 29.
 75 Cordesman, 38.
 76 U.S.N.I. database, United Communications Group and the U.S. Naval Institute and Beichman, 14.
 77 Segal, 951.
 78 Beichman, 14 and "Military Intelligence Analysts at Odds with State Department over Iran War Scenario" in Inside the Air Force, February 28, 1992, 1.
 79 Banks and Bruce, 159.
 80 Banks and Bruce, 158.
 81 Beichman, B-3.
 82 JPRS-UFM-88-004, 10 May 1988, 42.
 83 Banks and Bruce, 159.
 84 Banks and Bruce, 159.
 85 JPRS-UMA-004, 14.
 86 I. Guryanov: "The Iran-Iraq War", ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 2, February 1987 (signed to press 3 FEB 87) pp. 14-19
 87 A. Palov, "Iran's Ground Forces," ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 10, October 5, 1987 reprinted in JPRS-UFM-88-003, May 9, 1988, 15.
 88 Cordesman, 40.
 89 Breckenridge, 12 and V. Vinogradov, "The Iran-Iraq War: Those Who Profit from It," in VOYENNYE ZNANIYA reprinted in JPRS-UMA-88-004, 29 February 1988, 84.
 90 Breckenridge, 19.
 91 Cordesman, 32.
 92 Schahgaldian, 56.

BIBLIOGRAPHY

BOOKS

- Berquist, Ronald E. The Role of Airpower in the Iran-Iraq War. Maxwell Air Force Base: Air University Press, 1988.
- Breckenridge, James. The Iran-Iraq War 1980-1988, unpublished, 10.
- Cordesman, Anthony. The Iran-Iraq War and Western Security. London: Times Publishing Company, 1987.
- Cordesman, Anthony and Abraham Wagner. The Lessons of Modern War, Volume II: The Iran-Iraq War. London: Mansell Publishing, LTD, 1990.
- Dyer, Gwynne. "Iran", World Armies. ed. John Keegan. New York: Facts on File, 1983.
- Karsh, Efraim. The Iran-Iraq War: A Military Analysis. The International Institute for Strategic Studies Adelphi Papers, no. 220. Dorchester, Great Britain: Henry Ling, 1987.
- King, Ralph. The Iran-Iraq War: The Political Implications. International Institute for Strategic Studies Adelphi Papers, no. 219. Dorchester, Great Britain: Henry Ling, 1987.
- O'Ballance, Edgar. The Gulf War. London: Brassey's Defence Publishers, 1988.
- Pelletier, Stephen and Douglass V. Johnson II. Lessons Learned: The Iran-Iraq War. Strategic Studies Institute, U.S. Army War College, Carlisle Barracks, PA, 1991.
- Staudenmaier, William. "Iran-Iraq (1980-)", The Lessons of Recent Wars in the Third World. Eds. Robert Harkavy and Stephanie Neuman. Lexington, Lexington Books.
- "The Middle East and North Africa." In The Military Balance 1990-1991, 103. London: International Institute for Strategic Studies, 1990.

ARTICLES

- Axelguard, Frederick U. "Iraq and the War with Iran," Current History, February 1987, pp. 57-60, 82-87.

Banks, Tony and James Bruce. "Iran Builds Its Strength", Jane's Defence Weekly, VOL 17, No 5 - 1 February 1992, pp. 158-159.

Borowiec, Andrew. "Iranian defends arms buildup, cites Iraq threat," The Washington Times, February 20, 1992, p. 9.

Cook, Nick. "Soviet Air-Launched Weapons - As Smart as They Come." Jane's Intelligence Review, January 1992, 26-32.

Cordesman, Anthony. "Lessons in the Iran-Iraq War: Part Two: Tactics, Technology, and Training." Armed Forces Journal, April 1982, pp. 32-47.

Dingeman, James and Richard Dupa. "'Behold the Dawn' The Iran-Iraq War since February of 1986," Strategy and Tactics, August 1987, 44-55.

Gromov, Ye. "Principal Iranian Communication Routes and Ground Transportation," in ZARUBEZHNOYE VOYENNOYE in Russian No 11, November 1987 reprinted in JPRS-UFM-88-004, 10 May 1988, 43.

Guryanov, I. COL. "The Iran-Iraq War", ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 2, February 1987 (signed to press 3 FEB 87) pp. 14-19

Kuznetsov, V. "Concern over Spread of Missile Technology," The Current Digest of the Soviet Press, VOL. XLI, NO. 51 1989.

Morris, Harvey. "Scare over Nuclear Arms Leaks focuses on Iran; Lobby groups are exploiting fear in the West that former Soviet warheads may fall into the wrong hands," The Independent, February 25, 1992, Foreign News Page, 10.

O'Ballance, Edgar. "Iran vs Iraq", Defence Attache, No. 1/1987, pp. 25-31

Palov, A., LTC. "Iran's Ground Forces," ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 10, October 5, 1987 in JPRS-UFM-88-003, May 9, 1988, 13-15.

David Segal, The Iran-Iraq War: A Military Analysis, Foreign Affairs, Summer 1988, pp. 946-963.

Sick, Gary. "Trial by Error: Reflections on the Iran-Iraq War," Middle East Journal, Spring 1989, pp. 230-245.

Sauerwein, Brigitte. "Military Doctrine: The Software of Defense." International Defense Review, 5/1990, pp. 501-503.

Vinogradov, V. "The Iran-Iraq War: Those Who Profit from It," in VOYENNYE ZNANIYA reprinted in JPRS-UMA-88-004, 29 February 1988, 84.

STUDIES

Al-Lihaibe. "Analysis of the Iran-Iraq War". Air War College. Maxwell Air Force Base, AL 1989.

Barbero, M.D. "War of Exhaustion - The Result of the Paradoxical Trinity". School of Advanced Military Studies, Ft. Leavenworth, KS 1989.

Bermudez, Joseph S. Jr. "Ballistic Missile Development in Iran," paper prepared for the Missile Proliferation Project at the Monterey Institute of International Studies, February 1992.

Ellison, Gregory W. "Operational Art: The Missing Link in the Iran-Iraq War". MMAS thesis, Ft. Leavenworth, KS: U.S. Command and General Staff College, 1988.

Griffin, Gary B. "The Iraqi Way of War: An Operational Assessment". SAMS monograph, Ft. Leavenworth, KS: School of Advanced Military Studies, 1991.

Hoffpauir, Michael E. "Tactical Evolution in the Iraqi Army: The Abadan Island and Fish Lake Campaigns of the Iran-Iraq War". MMAS thesis, Ft. Leavenworth, KS: U.S. Army Command and General Staff College, 1991.

Katzman, Kenneth. "Iran's Islamic Revolutionary Guard Corps: Radical ideology despite institutionalization in the Islamic Republic". PhD dissertation, New York University, April, 1991.

Zacherl, Donald H. "Strategic and Operational Implications of Iranian Military Operations in the Iran-Iraq War", MMAS thesis, Ft. Leavenworth, KS: U.S. Army Command and General Staff College, 1986.

MILITARY PUBLICATIONS

Training and Doctrine Command Pamphlet 11-9, Blueprint of the Battlefield. Ft. Monroe, VA: April 1990.

Schahgaldian, Nikola B. The Iranian Military under the Islamic Republic. published by the Rand Corporation under contract R-3473-USDP, March 1987.

Schahgaldian, Nikola B. The Clerical Establishment in Iran.
published by the Rand Corporation under contract R-3788-
USDP, March 1989.

U.S.N.I. database. United Communications Group and the
United States Naval Institute, edition dated January 20,
1992.